UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/578,290	05/25/2000	James E Carey	1958.2001-000	5934

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EXAMINER
VO, LILIAN

ART UNIT	PAPER NUMBER
2195	

DATE MAILED: 09/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/578,290	CAREY, JAMES E
	Examiner	Art Unit	
	Lilian Vo	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 December 2005*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 41* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1 – 41 are pending.

2.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible

for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been

timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR

1.114. Applicant's submission filed on 12/16/05 has been entered.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 1, 4, 5, 6, 7, 10, 13 - 16, 19, 22 - 25, 28, 31 – 33, 36, 39 and 40 are rejected under

35 U.S.C. 103(a) as being unpatentable over Achenson et al. (US 6,477,586, hereinafter

Achenson) in view of Sullivan (US Pat. 5,438,680).

5.   Regarding **claim 1**, Achenson discloses in a multithreaded computing environment, a

method of processing computing tasks (abstract), comprising:

defining a plurality of worker threads, each thread capable of processing a task (abstract, col. 2 lines 16 - 19);

defining a plurality of task queues, each task queue capable of queuing a plurality of tasks (abstract, col. 2 lines 20 - 23);

associating each task queue with a respective worker thread (abstract, col. 2 line 21).

Achenson discloses of placing tasks in task queue (col. 5, lines 55 – 64) but did not clearly teach the process of assigning a task to a task queue in an essentially random fashion. This feature can be found in Sullivan in which tasks are simply assigned to processors in a generally random fashion (col. 6, lines 35 – 61). It is obvious for one of ordinary skill in the art, at the time the invention was made to incorporate this feature to Achenson to optimize system performance with task assignment.

6.   Regarding **claim 4**, as modified Achenson discloses the method of claim 1 further comprising, from a worker thread, processing a task from the associated task queue (Achenson: col. 5 lines 55 – 59, col. 6 lines 53 – 54).

7.   Regarding **claim 5**, as modified Achenson discloses the method of claim 1 further comprising, from a worker thread, processing a task from a task queue not associated with the thread (col. 5 lines 60 – 63, col. 6 line 64 – col. 7 lines 9).

8.   **Claims 6, 7, 10, 13 - 16, 19, 22 - 25, 28, 31 – 33, 36, 39 and 40 and 36** are rejected on the same ground as stated in claims 1, 4 and 5 above.

9.   Claims 2, 3, 8, 9, 11, 12, 17, 18, 20, 21, 26, 27, 29, 30, 34 and 35 are rejected under 35

U.S.C. 103(a) as being unpatentable over Achenson et al. (US 6,477,586) in view of Sullivan

(US Pat. 5,438,680) as applied to claims 1, 6, 10, 15, 19, 24, 28 and 33 above, and further in

view of Najork et al. (US Pat. 6,377,984, hereinafter Najork).

10.   Regarding **claims 2 and 3**, as modified Achenson did not clearly specify the steps of

assigning a task comprising selecting an empty task queue and determining whether the selected

task queue is in a busy state. Nevertheless, these teaching steps are disclosed in Najork's

invention (col. 3, lines 22 – 33).   It would have been obvious for one of ordinary skill in the art,

at the time the invention was made include Najork's teaching with modified Achenson to better

load balancing the tasks by utilizing all of the empty queues while not overloading other busy

queues in the system.

11.   **Claims 8, 9, 11, 12, 17, 18, 20, 21, 26, 27, 29, 30, 34 and 35** are rejected on the same

ground as stated in claims 2 and 3 above.

12.   Claims 37, 38 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Achenson et al. (US 6,477,586) in view of Sullivan (US Pat. 5,438,680) and further in view of

Brenner et al. (US Pat. Application Publication 2003/0225815, hereinafter Brenner).

13.   Regarding **claim 37**, Achenson discloses in a multithreaded computing environment, a

method of processing computing tasks (abstract), comprising:

defining a plurality of worker threads, each thread capable of processing a task (abstract,

col. 2 lines 16 - 19);

defining a plurality of task queues, each task queue capable of queuing a plurality of tasks

(col. 2 lines 20 - 23);

associating each task queue with a respective worker thread (col. 2 line 20);

from a worker thread, processing a task from the associated task queue (col. 5 lines 55 –

59, col. 6 lines 53 – 54).

Achenson discloses of placing tasks in task queue (col. 5, lines 55 – 64) but did not

clearly teach the additional limitations such as the process of:

assigning a task to a task queue in an essentially random fashion using a random number

generator to identify a task queue; and

searching for an empty task queue to store the task if it is determined that the initial task

queue is not empty.

Sullivan teaches the concept in which tasks are simply assigned to processors queue in a

generally random fashion (col. 6, lines 35 – 61). It is obvious for one of ordinary skill in the art,

at the time the invention was made to recognize Sullivan's system inherently use a random

generator to randomly select which processor queue for assigning the tasks.

Brenner teaches the concept of placing new thread/process in a run queue associated with

an idle processor (page 3, paragraph 0043). It is obvious to incorporate Sullivan's teaching to

Achenson to optimize system performance with task assignment in a random fashion (Sullivan:

col. 6, lines 55 – 61). It is also obvious for one of an ordinary skill in the art, at the time the

invention was made to apply Brenner's concept in assigning processes to an empty run queue to

Achenson's system so that optimal performance can be achieved with balancing processes

among the system run queues.

14.   **Claims 38 and 41** are rejected on the same ground as stated in claim 37 above.

Response to Arguments

15.   Applicant's arguments with respect to claims 1, 6, 10, 15, 19, 24, 28, 33 and 37 - 41 have

been considered but are moot in view of the new ground(s) of rejection.

Conclusion

16.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Lilian Vo whose telephone number is 571-272-3774. The

examiner can normally be reached on Thursday 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lilian Vo
Examiner
Art Unit 2195

lv
September 18, 2006

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